## Claims

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- 1. A method of making a sample vessel comprising:
- a) melting a plastics material
- 5 b) introducing the molten plastics material into a mold, and
  - c) allowing the plastics material to set in the mold

wherein the mold defines a cavity with the shape of a sample vessel which comprises a tubular portion, which tubular portion has a maximum external cross sectional width of up to 5mm and an internal sample volume of up to 100µl wherein the tubular portion comprises a tubular external wall with a thickness of from 0.01 to 2mm.

- 2. A method as claimed in claim 1 wherein the tubular external wall has a thickness in the range of from 0.1mm to 0.5mm.
- 3. A method as claimed in claim 1 or claim 2 in which the molten plastics material is introduced into the mold by injection.
- 4. A method as claimed in any one of claims 1 to 3 in which
- 20 the tubular portion
  - has a truncated conical external surface, the angle between a meridian of the truncated conical external surface and the axis of the cone being in the range of from 0.1 degrees to 10 degrees.
  - is closed at its narrower end, and
  - is open at its wider end.
  - 5. A method as claimed in any one of claims 1 to 4 in which the tubular portion has a maximum external cross sectional width of less than 3mm.
- 6. A method as claimed in any one of claims 2 to 5 in which the mean internal cross sectional width of the cavity of the tubular portion is in the range of from 0.02mm to 4.9mm.
  - 7. A method as claimed in any one of claims 1 to 6 in which the sample tube further comprises a section of frustoconical shape directly or indirectly adjoining the tubular portion, which section

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increases in external and optionally also internal diameter in the direction away from the tubular portion.

- 8. A method as claimed in any one of claims 1 to 7 in which the sample tube further comprises a neck portion comprising a cylindrical portion for receiving a closure means.
  - 9. A method as claimed in any one of claims 1 to 8 in which the mold comprises a highly polished portion at the tip of the mold.
- 10. A method as claimed in any one of claims 1 to 9 in which the plastics material is a cycloolefin copolymer, a cyclo-olefin polymer or polypropylene.
  - 11. A method as claimed in any one of claims 1 to 10 in which the plastics material is a cyclo olefin copolymer.
  - 12. A method as claimed in any one of claims 1 to 10 in which the plastics material is an amorphous cyclo-olefin polymer.
- 13. A method as claimed in any one of claims 1 to 10 in which the plastics material is20 polypropylene.
  - 14. A molded plastics material sample vessel which comprises a tubular portion which has a maximum external cross sectional width of up to 5mm and an internal sample volume of up to 100µl wherein the tubular portion comprises a tubular external wall with a thickness of from 0.01 to 2mm.
  - 15. A molded plastics material sample vessel as claimed in claim 14 which has any of the features described in any one or more of claims 1 to 13.
- 30 16. A sample vessel made according to a method of any one of claims 1 to 13.
  - 17. A sample holder unit comprising a plurality of sample vessels as claimed in any one of claims 14 to 16 made according to a method of any one of claims 1 to 13.

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- 18. Use of a sample vessel made according to a method of any one of claims 1 to 13 or a sample vessel as claimed in any one of claims 14 to 16 for heating a sample.
- 19. Use of a sample vessel made according to a method of any one of claims 1 to 13 or a sample
  vessel as claimed in any one of claims 14 to 16, for holding a sample during a nucleic acid amplification reaction.
  - 20. Use as claimed in claim 19 in which the sample is spectrophotometrically analysed during the nucleic acid amplification reaction.
- 21. Use of a sample vessel made according to a method of any one of claims 1 to 13 or a sample vessel as claimed in any one of claims 14 to 16, for holding a sample during a spectrophotometry experiment.